compl. Horsfall

SCIENCE ABSTRACTS

INDEX TO VOL. XXXIX

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SECTION A.—PHYSICS

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KEY TO SUBJECT INDEX.

The Domain of Physics is divided into eight Main Classes (*e.g.*, **GENERAL PHYSICS**). Each of these Classes is, in general, divided into a number of Sections the titles of which are known as Key-Headings (*e.g.*, **Elasticity and Plasticity**), and these Sections are in turn divided into Sub-Sections under titles known as Sub-Headings (*e.g.*, "Photoelasticity"). The Key-Headings are given below arranged in alphabetical order in their classes, and the scheme of Sub-Headings adopted is indicated in the remainder of the Key.

In the Subject Index the papers are grouped under the Sub-Headings of their appropriate Key-Headings, and these Key-Headings are arranged in alphabetical order throughout the whole Index.

The general form of entry of a paper consists of its full Title, the Author's Name and the Abstract Number assigned to the paper, the sequence of the entries under any Sub-Heading being the order of publication of the Abstracts as indicated by their Abstract Numbers.

Papers on **Apparatus and Instruments** have been given an additional classification according to their Names, arranged in alphabetical order, in a **Supplementary Index** which immediately follows the SUBJECT INDEX.

For electrical papers of essentially technical interest the reader should refer to "Science Abstracts, Section B.—Electrical Engineering."

GENERAL PHYSICS.

Adsorption.
Atomic and Molecular Structure.
Colloids.
Crystal Structure and Properties.
Density.
Diffusion and Osmosis.
Elasticity and Plasticity.
Gravitation.
Hydrodynamics and Aerodynamics.
Kinetic Theory of Matter.
Length (Standards, Measurements, Apparatus).
Mass (Standards, Measurements, Apparatus).
Mathematical Methods. Theory of Measurements. Units and Dimensions.
Mechanics, Classical.
Mechanics, Quantum.
Relativity and Ether.
Solution.
Surface Tension and Cohesion.
Time (Standards, Measurements, Apparatus).
Vacua, High.
Viscosity, Friction and Lubrication.

ASTRONOMY AND ASTROPHYSICS.

Astronomical Apparatus and Observatory Equipment.
Comets and Meteors.
Cosmogony.
Dynamical Problems (Astronomical).
Latitude and Longitude.
Nebulæ.
Planets.
Stars.
Sun.
Zodiacal Light and Gegenschein.

GEOPHYSICS.

Geodesy.
Geophysics, Applied.
Hydrosphere, Physics of the.
Land, Physics of the.
Meteorology.
Seismology.
Terrestrial Electricity and Magnetism.

RADIOACTIVITY.

All Abstracts relating to this subject are indexed under Radioactivity.

RADIATION.

Absorption and Transmission.
Colorimetry.
Electro-Optical and Magneto-Optical Effects.
Fluorescence and Phosphorescence. Luminescence and Afterglow.
Interference, Diffraction and Scattering.
Photochemistry (including Photography).
Photometry.
Polarisation.
Radiation, Emission.
Radiation, General Theory.
Radiation, Mechanical Effects.
Reflection, Refraction and Dispersion.
Spectroscopy.
Velocity of Light.
Vision.
X-Rays.

HEAT.

Calorimetry.
Conduction.
Convection.
Dilatation.
Melting and Boiling Points.
Temperature, Measurement of.
Thermochemistry.
Thermodynamics.
Vapour Pressure.

ACOUSTICS.

All Abstracts relating to this subject are indexed under Acoustics.

ELECTRICITY AND MAGNETISM.

Alternating-Current Networks.
Conduction and Discharge in Gases.
Conduction in Solids and Liquids.
Dielectrics and Capacitance.
Electrochemistry.
Electrons, Positrons and Protons, including Applications.
Electrostatics.
Galvanomagnetic and Thermomagnetic Effects.
Magnetism and Electromagnetism.
Medical Radiology and Electrology.
Oscillations and Waves.
Photoelectricity.
Piezoelectricity.
Thermionics.
Thermoelectricity.

KEY-HEADINGS WITH SUB-HEADINGS.

Absorption and Transmission (Radiation). Page 1349.

1. Visible Region. Dichroism.
2. Infra-Red Region.
3. Ultra-Violet Region.
4. Apparatus and Technique.
5. Unclassified.
   Cross-References :
      Absorption Spectra, *see* Spectroscopy.
      Circular Dichroism, *see* Polarisation (Radiation), 4.
      Cosmic Rays, *see* Radiation, Emission, 4.

Cross-References (contd.) :
   Electric Waves, *see* Oscillations and Waves, Electric, 6.
   γ-Rays, *see* Radioactivity, 6.
   Meteorological Optics, *see* Meteorology, 6.
   Photodichroism, *see* Photochemistry (including Photography), 2 (*j*.)
   Visibility, *see* Meteorology, 6; *also* Vision, 2.
   X-Ray Absorption, *see* X-Rays, 3 and 8.

Acoustics. Page 1350.

1. Theory of Waves and Vibrations.
2. Plates, Rods and Membranes.
3. Vibrating Columns of Air or other Gases.
4. Strings.
5. Velocity, Measurement of.
6. Propagation in the Atmosphere.
7. Supersonic Vibrations.
8. Architectural Acoustics.
9. Receivers and Reproducers.
10. Speech and Hearing. Noise.
11. Measurements of Absorption, Amplitude, Intensity, Frequency, Wave-Form, Radiation Pressure.
12. Unclassified.
    Cross-References :
       Architectural Acoustics, Noise, Receivers and Reproducers, *see also* Section B.—Electrical Engineering.
       Filter Circuits, *see* Alternating-current Networks, 2.

Adsorption. Page 1355.

1. Theory.
2. Adsorption at Interfaces
   (*a*) Liquid-Gas.
   (*b*) Liquid-Liquid.
   (*c*) Solid-Gas.
   (*d*) Solid-Liquid.
3. Electrical Phenomena at Interfaces.
4. Apparatus and Technique.
5. Unclassified.
   Cross-References :
      Monomolecular Surfaces and Allied Phenomena, *see* Surface Tension and Cohesion, 5.
      See also Thermodynamics, 5.

Alternating-Current Networks. Page 1358.

1. Bridges for Measuring Capacitance, Inductance, Frequency and Power Factor.
2. Filter Circuits.
3. Analysis of Non-Electrical Systems into their Equivalent Electrical Circuits.
4. Unclassified.
   Cross-References :
      Filter Circuits; *see also* Section B.—Electrical Engineering.
      Frequency, *see also* Oscillations and Waves, Eletric, 4.

Astronomical Apparatus and Observatory Equipment. Page 1359.

Atomic and Molecular Structure. Page 1360.

1. Nuclear Constitution.
2. Artificial Disintegration of Elements and Artificial Radioactivity.
3. Isotopes and Isobares.
4. Neutrons.
5. Periodic System.
6. Arrangement of Orbital Electrons.
7. Valency.
8. Molecular Structure.
9. Association.
10. Atomic and Molecular Magnitudes.
11. Unclassified.
    Cross-References :
       Atomic and Molecular Rays, *see* Kinetic Theory of Matter, 3.
       Atomic and Molecular States, *see* Spectroscopy, 2 and 3.
       Critical Potentials, *see* Conduction (Electric) and Discharge in Gases, 5.
       Dipole Moments and Molecular Polarisation, *see* Dielectrics and Capacitance, 2.
       Nuclear Moments, *see* Spectroscopy, 2*g*.
       Ramsauer Effect, *see* Electrons, Positrons and Protons, including Applications, 3.

Calorimetry. Page 1371.

1. Specific Heat:
    - (*a*) Gases and Liquids.
    - (*b*) Solids.
2. Latent Heat:
    - (*a*) Fusion.
    - (*b*) Evaporation.
3. Apparatus and Technique.
4. Unclassified.

Cross-References:
Heat of Adsorption, *see* Adsorption, 2.
Cross-References (*contd.*):
Heat of Combustion, *see* Thermochemistry, 2.
Heats of Formation and Dissociation, *see* Thermochemistry, 3.
Heats of Solution and Dilution, *see* Thermochemistry, 1.
Thermodynamics of Specific Heat and Latent Heat, *see* Thermodynamics, 3.

Colloids. Page 1373.

1. Theory.
2. Sols:
    - (*a*) Preparation and Chemical Composition.
    - (*b*) Electrical Properties (Coagulation, Cataphoresis, Electroosmosis, etc.).
    - (*c*) Optical Properties.
    - (*d*) Viscosity and Mechanical Properties.
3. Gels:
    - (*a*) Formation and Composition.
    - (*b*) Optical Properties.
    - (*c*) Viscosity and Mechanical Properties.

3. Gels (*contd.*):
    - (*d*) Swelling, Shrinking, Synaeresis.
    - (*e*) Structure.
    - (*f*) Membranes.
4. Fibres.
5. Emulsions and Suspensions.
6. Apparatus and Technique.
7. Unclassified.

Cross-References:
Adsorption Phenomena, *see* Adsorption.
Brownian Motion, *see* Kinetic Theory of Matter, 5.
Surface Tension Phenomena, *see* Surface Tension.

Colorimetry. Page 1378.

1. Theory.
2. Apparatus and Technique.
3. Unclassified.

Cross-Reference:
See also Vision, 1 and 2.

Comets and Meteors. Page 1378.

1. Comets:
    - (*a*) Orbits.
    - (*b*) Spectra.

1. Comets (*contd.*):
    - (*c*) Unclassified.
2. Meteors.

Conduction (Electric) and Discharge in Gases. Page 1379.

1. Theory.
2. Conduction at Higher Pressures (Order of one Atmosphere). Spark and Arc. Mobility of Ions. Recombination of Ions.
3. Low-Pressure Discharge. Theory. Dark Space. Kathode Fall of Potential. Negative Glow. Positive Column. Electrodeless Discharge.
4. Measurement of e/m of Ions.
5. Ionisation by Electron Impact. Critical Potentials.
6. Ionisation by Collision with Atoms and Ions.
7. Ionisation by Chemical Action. Ionisation by Splashing.
8. Positive Rays (Canal Rays). Anode Rays.
9. Kathode Rays. Lenard Rays.
10. Chemical Effects of Discharge.
11. Apparatus and Methods of Measurement.
12. Unclassified.

Cross-References:
Artificial Disintegration of Nuclei, *see* Atomic and Molecular Structure, 2.
Auto-Electronic Emission, *see* Thermionics, 4.
Diffraction, Scattering, Reflection, etc., of Electrons, *see* Electrons, Positrons and Protons, including Applications, 3.
Electric Breakdown, *see also* Section B.—Electrical Engineering.
Electron Optics, *see* Electrons, Positrons and Protons, including Applications, 6.
Ionic Oscillations, *see* Oscillations and Waves, Electric, 1.
Ionisation by α-Rays, *see* Radioactivity, 4.
Ionisation by X-Rays, *see* X-Rays, 3.
Kathode-Ray Oscillographs, *see* Electrons, Positrons and Protons, including Applications, 7.
Luminous Effects, Radiations, *see* Spectroscopy.
Measurement of e/m of Electrons, *see* Electrons, Positrons and Protons, including Applications, 2.
Ramsauer Effect, *see* Electrons, Positrons and Protons, including Applications, 3.
Secondary Electronic Emission, *see* Electrons, Positrons and Protons, including Applications, 3.

Conduction (Electric) in Solids and Liquids. Page 1386.

1. Theories.
2. Voltage Measurement (Apparatus and Methods).
3. Current Measurement (Apparatus and Methods).
4. Resistance Measurement (Apparatus and Methods).
5. A.C. Resistance. Skin Effect.
6. Effects of Temperature, Pressure and Mechanical Stress on Resistivity.
7. Surface Conduction. Contact Resistance (including Contact Rectifiers).
8. Special Effects (Supraconductivity, etc.).
9. Conductivity :
    - (*a*) Metals, Alloys and Non-Metals.
    - (*b*) Liquids (including Solutions).

9. Conductivity (*contd.*) :
    - (*c*) Dielectrics.
10. Unclassified.

Cross-References :

Effect of Magnetic Field on Resistance, *see* Galvanomagnetic and Thermomagnetic Effects.

Photoconductivity, *see* Photoelectricity, 4.

Rectifiers (other than Contact) and Rectification, *see* Oscillations, Electric, 3.

Single Crystals, Conductivity of, *see* Crystal Structure and Properties, 6.

Units of Measurement, *see* Mathematical Methods, etc., 3.

Conduction (Thermal). Page 1392.

1. Theory
    - (*a*) Mechanism of Conduction.
    - (*b*) Propagation of Heat in Steady or Variable State.
2. Conductivity Coefficients :
    - (*a*) Gases and Liquids.
    - (*b*) Solids.
    - (*c*) Experimental Methods.
3. Unclassified.

Convection. Page 1393.

1. Free Convection.
2. Forced Convection.
3. Emissivity and Rate of Cooling (including Loss of Heat by Radiation, Conduction and Convection).
4. Unclassified.

Cross-Reference :

Emissivity (Pure Radiation), *see* Radiation, Emission, 1.

Cosmogony. Page 1395.

Cross-Reference :

Cosmic Radiation, *see* Radiation, Emission, 4.

Crystal Structure and Properties. Page 1395.

1. General Theory.
2. Crystal Structure :
    - (*a*) Metals and Alloys.
    - (*b*) Inorganic.
    - (*c*) Organic.
    - (*d*) Biological.
3. Liquid Crystals.
4. Morphology of Crystals (Crystal Form, Habit, Growth).
5. Optical Properties.
6. Physical Properties (other than Optical).
7. Apparatus and Technique.
8. Unclassified.

Cross-References :

Diffraction and Reflection of Electrons by Crystals, *see* Electrons, Positrons and Protons, including Applications, 3.

Photoelectric Effects, *see* Photoelectricity, 2.

Piezoelectric Effect, *see* Piezoelectricity.

Reflection of Atoms and Molecules by Crystals, *see* Kinetic Theory of Matter, 3.

X-Ray Diffraction, Reflection, etc., by Crystals, *see* X-Rays.

Density. Page 1407.

1. Density of Gases and Vapours.
2. Density of Liquids.
3. Density of Solids.
4. Apparatus and Technique.
5. Unclassified.

Cross-Reference :

Earth, *see* Land, Physics of the.

Dielectrics and Capacitance. Page 1408.

1. Theory.
2. Dielectric Constants and Electric (Dipole) Moments :
    (*a*) Solids.
    (*b*) Gases.
    (*c*) Liquids and Colloids.
3. Effects of Electric and Magnetic Fields.
4. Effect of Frequency.
5. Effects of Mechanical Stress, Temperature and Moisture.
6. Dielectric Loss.
7. Capacitance and its Measurement.
8. Unclassified.

Cross-References :
Refractive Index of Dielectrics, *see* Reflection, Refraction and Dispersion, 4.
Electric Breakdown, *see also* Section B.—Electrical Engineering.

Diffusion and Osmosis. Page 1413.

1. Diffusion (General).
2. Osmosis.
3. Membrane Equilibria.
4. Apparatus.

Cross-References :
Association, *see* Atomic and Molecular Structure, 9.
Electroosmosis, *see* Colloids, 2*b*.

Dilatation. Page 1415.

1. Expansion Coefficients :
    (*a*) Gases.
    (*b*) Liquids and Solids.
    (*c*) Experimental Methods.
2. Unclassified.

Cross-References :
Expansion of Rocks, etc., *see* Land, Physics of the, 2 ; *also* Meteorology, 2.
Expansion of Sea Water, *see* Hydrosphere, Physics of the, 1.
Thermodynamical Theory, *see* Thermodynamics.

Dynamical Problems (Astronomical). Page 1416.

Cross-References :
General Dynamics, *see* Mechanics, Classical ; *also* Mechanics, Quantum.

Elasticity and Plasticity. Page 1417.

1. Theory.
2. Measurements of Elastic Coefficients.
3. Relations between Elastic Coefficients and other Physical Properties.
4. Plasticity.
5. Photoelasticity.
6. Vibrations and Waves.
7. Strength and Failure Tests.
8. Apparatus and Technique.
9. Unclassified.

Cross-References :
Acoustic Vibrations, *see* Acoustics, 1.
Elasticity of Crystals, *see* Crystal Structure and Properties, 6.
Elastic Properties of Colloids, *see* Colloids, 2*d* and 3*c*.
Piezoelectric Oscillations, *see* Piezoelectricity, 2.
P.V.T. Relations, Theoretical, *see* Thermodynamics, 2.
Seismic Effects, *see* Seismology.

Electrochemistry. Page 1421.

1. Primary and Secondary Cells.
2. Concentration Cells.
3. Electrolysis.
4. Ionic Mobilities and Transport Numbers.
5. Electrode Potentials and Electrode Phenomena.
6. Apparatus and Technique.
7. Unclassified.

Cross-References :
Becquerel Effect, *see* Photoelectricity, 5.
Conductivity of Electrolytes, *see* Conduction (Electric) in Solids and Liquids, 9*b*.
Electrocapillary Phenomena, *see* Surface Tension and Cohesion, 6.
Electrokinetic Phenomena, *see* Colloids, 2*b*.
Electrometallurgy, Electroplating and Electrotyping, *see* Section B.—Electrical Engineering.
Photovoltaic Cells, *see* Photoelectricity, 5.
Theories of Solution, *see* Solution, 1.
Thermodynamics of Cells, *see* Thermodynamics, 5 and 6.

Electro-Optical and Magneto-Optical Effects. Page 1426.

1. Double Refraction in Electric or Magnetic Fields.
2. Magnetic Rotation of Plane of Polarisation.
3. Unclassified.

Cross-References :
- Photoelasticity, *see* Elasticity and Plasticity, 5.
- Photoelectric Effect, *see* Photoelectricity.
- Photophoresis, Effect of Electric or Magnetic Fields, *see* Radiation, Mechanical Effects, 2.
- Stark Effect, *see* Spectroscopy, 7.
- Zeeman Effect, *see* Spectroscopy, 6.

Electrons, Positrons and Protons, including Applications. Page 1427.

1. Constitution.
2. Magnitudes (Charge, Mass, Magnetic Moments, etc.).
3. Collision : Diffraction, Scattering, Reflection, Absorption.
4. Diffusion.
5. Waves.
6. Electron Optics.
7. Kathode-Ray Oscillographs.
8. Unclassified.

Cross-References :
- Conduction of Electricity in Metals, *see* Conduction (Electric) in Solids and Liquids, 1.
- Conduction of Heat in Metals, *see* Conduction (Thermal), 1.
- Excitation Potentials, *see* Conduction (Electric) and Discharge in Gases, 5.
- Kathode Rays, *see also* Conduction (Electric) and Discharge in Gases, 9.
- Neutrons, *see* Atomic and Molecular Structure, 4.
- Thermoelectric Effects in Metals, *see* Thermoelectricity, 1.
- *See also* Atomic and Molecular Structure, *also* Radioactivity.

Electrostatics. Page 1433.

1. Theory.
2. Frictional Electricity.
3. Contact Potential.
4. Apparatus.
5. Unclassified.

Cross-References :
- Capacitance, *see* Dielectrics and Capacitance, 7.
- Dielectric Constants, *see* Dielectrics and Capacitance, 2.
- Electrode Potentials, *see* Electrochemistry, 5.
- Units, *see* Mathematical Methods, etc., 3.

Fluorescence and Phosphorescence. Luminescence and Afterglow. Page 1434.

1. Fluorescence.
2. Phosphorescence.
3. Luminescence and Afterglow.
4. Apparatus and Instruments.
5. Unclassified.

Cross-References :
- Fluorescence and Phosphorescence Spectra, *see* Spectroscopy, 5.
- *See also* Zodiacal Light and Gegenschein.

Galvanomagnetic and Thermomagnetic Effects. Page 1436.

1. Galvanomagnetic Effects :
   - (*a*) Hall and Corbino Effects.
   - (*b*) Ettingshausen Effect.
   - (*c*) Change of Resistance in Magnetic Field.
2. Thermomagnetic Effects :
   - (*a*) Nernst Effect.
   - (*b*) Leduc Effect.
3. Unclassified.

Geodesy. Page 1436.

1. Theory.
2. Apparatus and Measurements.

Cross-References :
- Isostasy, *see* Gravitation, 2.
- *See also* Latitude and Longitude.

Geophysics, Applied. Page 1437.

1. Surveying and Prospecting:
    (*a*) Electrical Methods.
    (*b*) Magnetic Methods.
    (*c*) Gravitational Methods.
1. Surveying and Prospecting (*contd.*):
    (*d*) Seismic Methods.
2. Unclassified.

Gravitation. Page 1438.

1. General.
2. Terrestrial Gravity.
3. Value of "G."
4. Apparatus and Technique.
5. Unclassified.

Cross-References:
Gravitational Prospecting, *see* Geophysics, Applied, 1*c*.
Pendulums, *see also* Mechanics, Classical, 2.

Hydrodynamics and Aerodynamics. Page 1439.

1. Aerodynamical Theory.
2. Hydrodynamical Theory: Non-Viscous Liquids.
3. Hydrodynamical Theory: Viscous Liquids.
4. Measurement of Fluid Flow.
5. Apparatus and Technique.
6. Unclassified.

Hydrosphere, Physics of the. Page 1442.

1. Thermal Data.
2. Optical Data.
3. Ocean Tides and Currents.
4. Inland Lakes. Rivers.
5. Unclassified.

Interference, Diffraction and Scattering (Radiation). Page 1443.

1. Interference Effects.
2. Interference, Applications.
3. Diffraction.
4. Scattering.
5. Apparatus and Instruments.
6. Unclassified.

Cross-References:
Compton Effect, *see* X-Rays, 2.
Electric Waves, *see* Oscillations and Waves, Electric, 6.
Meteorological Optics (Corona, Halo, etc.), *see* Meteorology, 6.
Raman Effect, *see* Spectroscopy, 8.

Kinetic Theory of Matter. Page 1446.

1. Gases.
2. Radiometer Effect.
3. Atomic and Molecular Rays.
4. Liquids and Solids.
5. Brownian Motion.
6. Unclassified.

Cross-References:
Electrons, Motion of, *see* Electrons, Positrons and Protons, including Applications, 3 and 5.
Photophoresis, *see* Radiation, Mechanical Effects of, 2.
P.V.T. Relations, Experimental, *see* Elasticity and Plasticity, 2; Theoretical, *see* Thermodynamics, 2.

Land, Physics of the. Page 1448.

1. Earth's Interior.
2. Thermal Phenomena.
3. Physical Properties of Rocks.
4. Soil Physics.
5. Earth Tides.
6. Unclassified.

Cross-References:
Isostasy, *see* Gravitation, 2.
Lakes, Rivers, Seiches, *see* Hydrosphere, Physics of the, 4.

Latitude and Longitude. Page 1449.

Cross-Reference: See also Geodesy.

Length (Standards, Measurements, Apparatus). Page 1449.

1. Standards.
2. Apparatus and Measurements.

Cross-References:
Variation of Length with Temperature, *see* Dilatation, 1.
Units, *see* Mathematical Methods, etc., 3.

Magnetism and Electromagnetism. Page 1450.

1. Theory.
2. Ferromagnetism.
3. Diamagnetism and Paramagnetism.
4. Electromagnetic Field and Electrodynamics.
5. Electromagnetic Induction. Inductance.
6. Magneto-Mechanical Effects (Gyromagnetic Effect and Magnetostriction).
7. Apparatus and Technique.
8. Unclassified.

Cross-References :
- Earth's Magnetism, *see* Terrestrial Electricity and Magnetism, 2.
- Eddy Currents, *see* Conduction (Electric) in Solids and Liquids, 5.

Cross-References (contd.) :
- Effect of Magnetic Field on Resistance, *see* Galvanomagnetic and Thermomagnetic Effects.
- Inductive Networks, *see* Alternating-Current Networks, 1.
- Instruments for Measuring Current, Voltage and Resistance, *see* Conduction (Electric) in Solids and Liquids, 2, 3 and 4.
- Skin Effect, *see* Conduction (Electric) in Solids and Liquids, 5.
- Units, *see* Mathematical Methods etc. 3.

Mass (Standards, Measurements, Apparatus). Page 1456.

1. Standards.
2. Apparatus and Measurements.

Cross-Reference :
- Units, *see* Mathematical Methods, etc. 3.

Mathematical Methods. Theory of Measurements. Page 1456. Units and Dimensions.

1. Mathematical Methods.
2. Theory of Measurements, Probability and Errors.
3. Units and Dimensions.
4. Apparatus and Technique.
5. Unclassified.

Mechanics, Classical. Page 1459.

1. Statics.
2. Dynamics.
3. Statistical Mechanics.
4. Apparatus and Measurements.

Cross-References :
- Acceleration due to Gravity, *see* Gravitation, 2.
- Astronomical Dynamics, *see* Dynamical Problems (Astronomical).
- Atomic and Molecular Rays, *see* Kinetic Theory of Matter, 3.

Cross-References (contd.) :
- Elastic Vibrations, *see* Elasticity and Plasticity, 6, *and* Acoustics, 1.
- Hydrodynamics and Aerodynamics, *see under*.
- Kinetic Theory, *see* Kinetic Theory of Matter.
- Wave Motion, *see* Elasticity and Plasticity, 6, *and* Seismology.

Mechanics, Quantum. Page 1460.

1. Matrix (or Symbolic) and Wave Mechanics.
2. Statistical Mechanics.
3. Experimental Determination of "*h*."

Cross-References :
- Special Applications, *see* Atomic and

Cross-References (contd.) :
- Molecular Structure; Electrons, Positrons and Protons, including Applications; Radiation, General Theory; Radioactivity; Spectroscopy; Thermodynamics; X-Rays.

Medical Radiology and Electrology. Page 1464.

1. Electrobiology.
2. Electrotherapy.
3. Radiography.
4. Radiotherapy :
   - (*a*) Infra-Red Rays.
   - (*b*) Ultra-Violet Rays.

4. Radiotherapy (*contd.*) :
   - (*c*) X-Rays.
   - (*d*) Radioactive Radiations.
5. Unclassified.

Cross-Reference :
- Industrial Radiography, *see* X-Rays, 11.

Melting and Boiling Points. Page 1467.

1. Melting Points.
2. Boiling Points.
3. Relations of M. Pt. and B. Pt. and other Physical Properties.
4. Liquefaction and Solidification.
5. Evaporation and Condensation.
6. Apparatus and Technique.
7. Unclassified.

Cross-References :

Standard Fixed Points, *see* Temperature, Measurement of, 1.
Thermodynamic Theory, *see* Thermodynamics, 3 and 5.

Meteorology. Page 1470.

1. Constitution of the Atmosphere at Various Levels. The Ozone Layer.
2. Temperature and Radiation.
3. Dynamical Meteorology (Pressure, Wind, Turbulence, Weather Maps and Forecasting).
4. Rain, Snow, Dew, Cloud, Fog, Moisture, Dust.
5. Climatology.
6. Optical Phenomena (Aurora, Night Sky, Corona, Halo, etc.).
7. Meteorological Instruments.
8. Unclassified.

Cross-References :

Aurora, *see also* Terrestrial Electricity and Magnetism, 2.
Cosmic Rays, *see* Radiation, Emission, 4.
Electrical and Magnetic Phenomena, *see* Terrestrial Electricity and Magnetism.
Solar Radiation, *see* Sun, 4.
Visibility, *see also* Vision, 2.

Nebulæ. Page 1474.

1. Galactic.
2. Extra-Galactic.

Oscillations and Waves, Electric. Page 1475.

1. Generation.
2. Amplification.
3. Rectification.
4. Measurement of Frequency.
5. Applications.
6. Electric Waves :
   (*a*) General.
   (*b*) In Ionosphere.
7. Unclassified.

Cross-References :

Crystal Rectification, *see* Conduction (Electric) in Solids and Liquids, 7.
Frequency, *see also* Alternating-Current Networks, 1.
Piezoelectric Oscillations, *see* Piezoelectricity, 2.
See also Section B.—Electrical Engineering.

Photochemistry (including Photography). Page 1478.

1. General.
2. Photography :
   (*a*) Theory.
   (*b*) Contrast, Gradation and Density.
   (*c*) Development, Fixation, Reduction, Intensification, Toning, Washing, Drying.
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   (*b*) Propagation of Heat in Steady or Variable State.
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   (*a*) Gases and Liquids.
   (*b*) Solids.
   (*c*) Experimental Methods.
3. Unclassified.

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1. Free Convection.
2. Forced Convection.
3. Emissivity and Rate of Cooling (including Loss of Heat by Radiation, Conduction and Convection).
4. Unclassified.

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    (*b*) Inorganic.
    (*c*) Organic.
    (*d*) Biological.
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(*b*) *Inorganic.*

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4. Rain, Snow, Dew, Cloud, Fog, Moisture, Dust.
5. Climatology.
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    (*b*) Contrast, Gradation and Density.
    (*c*) Development, Fixation, Reduction. Intensification, Toning, Washing, Drying.
    (*d*) Sensitivity, Sensitisation, Desensitisation, Sensitive Material, Sensitometry.
    (*e*) Emulsions and Emulsion Processes.
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2. Polarisation by Refraction.
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4. Cosmic Rays.
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2. Solubility.
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